

U.S. Patent Application Serial No. **10/531,075**
Response filed September 20, 2010
Reply to OA dated March 22, 2010

REMARKS

After entry of the amendments herein, claims 1, 6, and 7 shall be pending in the subject application. Claim 5 has been canceled herein without prejudice or disclaimer as to its subject matter. Claim 1 has been amended herein and Claims 6 and 7 have been newly added herein in order to more particularly point out and distinctly claim subject matter. The Applicant respectfully submits that no new matter has been added. It is believed that this paper is fully responsive to the Office Action dated March 22, 2010.

1. Claims 1 and 5 stand rejected under 35 U.S.C. 103(a) as being obvious over Fisher (USPN 6,620,872) in view of Valimont (USPN 4,704,174) or Parker (USPN 5,593,786) or Bartrug (USPN 6,791,065) or Veerasamy (USPN 6,827,977).

Applicant respectfully traverses this rejection, for the following reasons.

The Examiner has improperly suggested that: “Fisher clearly teaches a single sheet or ‘stand-alone board’ made from the PVB/LaB₆ blend” (Office Action dated March 22, 2010, page 4, lines 1-2).

In Column 1, lines 14-16, of Fisher, it is described that “The present, invention relates to an infrared (IR) absorbing polyvinyl butyral composition, a sheet made therefrom and glass laminates

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containing the sheet as an interlayer.” Accordingly, the invention described in Fisher is intended for a Polyvinyl butyral composition, a sheet made from the composition, and a glass laminate containing the sheet as an interlayer. Therefore, the invention formally includes “stand-alone sheet” as well as “sheet used as an interlayer.”

However, as described in Column 1, lines 22-26, “Polyvinyl butyral (PVB) resin sheet is used in light-transmitting laminates containing one or more rigid layers, such as glass, for applications such as automotive and architectural glazings, show cases, and protective glass for pictures, documents and the like.” Accordingly, the sheet of Fisher is used in laminates, and there is no description of “stand-alone sheet.”

In Fisher, in Column 1, line 46 to Column 2, line 7 of the publication, merely coating compositions and interlayer film which contain fillers that provide heat insulation are described as examples. In particular, according to the description in column 2, lines 47, “There is no disclosure or suggestion, however, of employing metal hexaboride as a nanoparticulate dispersion in a PVB composition, particularly for use as an interlayer sheet in a glass laminate.” The object of the invention of Fisher is to provide an interlayer sheet made from the PVB/LaB₆ blend.

In fact, only laminates each formed with an interlayer sheet made from the PVB/LaB₆ blend (interposed between two sheets of glass) are described in Examples 1 to 7 in Fisher.

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Further, as described in the BRIEF DESCRIPTION OF THE DRAWINGS in Fisher, “FIG. 1 is a transmission spectra indicating the effect of LaB_6 on clear glass laminates having a polyvinyl butyral interlayer containing 0.45% antimony tin oxide.” Accordingly, the transmission spectra of FIG. 1 and FIG. 2 were measured of glass laminates.

Thus, there is no description of “single sheet or ‘stand-alone board’ made from the PVB/ LaB_6 blend” in Fisher.

As indicated by the Examiner, there is a description in Fisher in Col. 3, lines 39-42, that “While PVB is the preferred resin used in the present invention it should be recognized that other polymers which may be used to form interlayer sheets of glass laminates could be substituted for PVB.”

However, this is merely a description of “other polymers which may be used to form interlayer sheets of glass laminates.” Accordingly, there is no description at all in Fisher, which suggests use of resins other than PVB to form anything other than interlayer sheets.

One aspect of the features disclosed in the subject application relates to “board-like material useful as a roof material, an outer wall material, etc., in agricultural and horticultural houses. More particularly, it relates to a heat shielding material for an agricultural and horticultural facility, which

has the effect of shielding heat”(Specification, p. 1, lines 7-12). Some factors to be considered for producing such a shielding material include temperature control, visibility and cost, as well as the transmittance of certain wavelengths of light required for plant growth and pollination activities, which have not yet been achieved in a known agricultural or horticultural housing material (Specification, p. 3, lines 2-17; p. 8, lines 1-15).

The Examiner alleged in the Action that “Fisher clearly teaches a single sheet or ‘stand-alone board’ made from the PVB/LaB6 blend as well as composites utilizing the separately-formed sheet as a layer or interlayer sheet (and not a coating on a substrate or coating between two substrates), where Fisher teaches that as a sheet, the thickness is about 0.13 to 1.3mm” (Office Action dated March 22, 2010, p. 4, lines 1-5).

However, Fisher does not disclose a free standing plate or sheet that is intended to be used by itself to provide a structural support. The single sheet mentioned in Fisher is a sheet intended to be used to form an interlayer (e.g., “Polyvinyl butyral (PVB) resin sheet is used in light-transmitting laminates *containing one or more rigid layers, such as glass...*” Fisher, col. 1, lines 22-25 (Emphasis added)). Further, as the Examiner pointed out, the greatest thickness for Fisher’s interlayer disclosed in Fisher is 0.13 to 1.3 mm for a heavily plasticized PVB sheet which is intended to be used as an interlayer (Fisher, col. 3, lines 60-65). Thus, Fisher fails to disclose or suggest a heat shield layer made of either PVC or PVB, “said heat shield layer being in the form of a *single*

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plate having a thickness of 2 to 15 mm,” as set forth in claim 1, as amended.

Valimont, Parker, Bartrug and Veerasamy have been cited by the Examiner to disclose the interchangeability of PVC as an interlayer substitute for a PVB interlayer. However, none of these references discloses or suggests the recited heat shield layer being in the form of a single plate having a thickness of 2 to 15 mm, as set forth in claim 1, as amended.

Further, the Examiner suggested in the Action that, while Fisher teaches PVB as the preferred resin to be used in its invention, other polymers, including PVC, may be used to form an interlayer sheet of glass laminates in accordance with Fisher's invention. Indeed, Fisher states that “While PVB is the preferred resin used in the present invention[,] it should be recognized that *other polymers which may be used to form interlayer sheets* of glass laminates could be substituted for PVB.” Thus, Fisher only concerns embodiments in which the layer containing LaB₆ has a composition suitable for serving as an interlayer.

In the subject application, the plate is not intended to serve as an interlayer. The Fisher reference does not disclose or suggest anywhere that its PVB layer is used to form a “single plate” as now claimed. Further, it does not disclose or suggest anything regarding a heat shield layer in the form of a single plate comprising polyvinyl chloride resin as now claimed. Valimont, Parker, Bartrug and Veerasamy have been cited by the Examiner to merely disclose the interchangeability

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of PVC as an interlayer substitute for a PVB interlayer. None of these references discloses or suggests a single PVC plate that is a heat shield layer with the recited thickness and composition. This provides an additional reason for withdrawing this rejection.

The disclosure of the subject application supports the amendment to claim 1 (see, for example, page 15 at line 17, and page 17 at lines 2-3).

Accordingly, Applicant respectfully submits that Fisher, Valimont, Parker, Bartrug, and Veerasamy, alone or in combination, fail to describe, teach, or suggest the combination of features as set forth in claim 1, as amended.

In view of the above remarks and amendments, Applicant respectfully submits that this rejection should be withdrawn.

2. Claims 6 and 7

Claims 6 and 7 have been newly added herein.

Support for these claims can be found in the specification on page 12, line 22, to page 13, line 1 (Publication, paragraph [0028]) and on page 13, lines 6-25 (Publication, paragraphs [0029]

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and [0030]).

Applicant respectfully submits that the cited art fails to make obvious the combination of the features as set forth in claims 6 and 7 by virtue of their dependency.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the Applicant's undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, the Applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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Enclosure: Petition for Extension of Time